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ABSTRACT

Experimental interest in anger arousal has typically been incidental or secondary to the study of aggresssion. Novaco developed a cognitive behavior therapy approach to chronic anger problems. Clinical techniques have followed the work of Meichenbaum (1974, 1975) in the development of an approach called "stress inoculation" that has been applied to anxiety and pain. Cognitive factors in the regulation of anger and the use of skills training approaches to self-control are reviewed as they pertain to the development of the stress inoculation model. The stress inoculation approach to anger management is described as having three basic steps: (a) cognitive preparation, (b) skill acquisition and rehearsal, and (c) application practice. Results of the anger managment procedures for a group of hospitalized patients are presented. The treatment was conducted on an acute psychiatric ward of a community hospital for patients, having problems with anger who were referred by the attending psychiatrist. Treatment is evaluated by means of staff behavior ratings, test inventories, self-monitored ratings of anger and ability to manage provocation, and self-report and physiological measures of anger to simulated provocations. The interface of treatment and assessment by the application practice phase is described. (Author)

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Cognitive Regulation and Skills Training in the Management of Anger: A Stress Inoculation Approach

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Cognitive Regulation and Skills Training in the Management of Anger:

A Stress Inoculation Approach

Experimental interest in anger arousal has typically been incidental or secondary to the study of aggression. Laboratory research on the process of anger arousal is indeed sparse, but the dearth of clinical studies of the treatment of anger problems is even more striking. Furthermore, despite the involvement of anger in the psychological deficits of clinical populations, no existing theory of psychotherapy articulates a coherent view of anger problems or the means by which they might be remedied.

A cognitive behavior therapy approach to chronic anger problems was developed and experimentally evaluated by Novaco (1975; in press a). It was found that cognitive self-control procedures could be effectively used in the regulation of anger, particularly when combined with training in relaxation. The combined treatment program resulted in significant improvement over component treatment and control conditions across multiple self-report and physiological indices for imaginal, role play, and direct provocations. The present paper describes the continued development of this treatment approach which entails cognitive regulation and skills training in the management of anger. While the anger management procedures involve interventions at the cognitive, affective, and behavioral levels, the substance of the present paper is restricted to the cognitive components. The conception of anger and the treatment interventions are grounded in three domains of theory and research, these being (a) cognitive determinants of aggressive behavior, (b) cognitive factors in emotional arousal, and (c) cognitive change methods in psychotherapy.

Cognitive Determinants of Aggressive Behavior

Although there has been controversy about whether cognitive parameters, particularly "intent," need be incorporated into definitions of aggression (Bandura and Walters, 1963; Buss, 1961; Urich and Flavell, 1970; Tedeschi, Smith, and Brown, 1974), there has been considerable evidence that cognitive factors influence the occurrence of aggressive behavior. The authors of the classic frustration-aggression monograph (Dollard, Doob, Miller, Mowrer, and Sears, 1939) often alluded to the operation of cognitive processes as mediators of the occurrence, inhibition, and displacement of aggression. The importance of the cognitive properties of provocative events was further noted by Pastore (1952) who found that the arbitrariness of frustration was a significant determinant of aggressive responses. People reported more aggression in response to thwartings that were without justification.

The stimulus control of aggressive behavior is a cognitively mediated process. Early learning theory formulations (Dollard and Miller, 1950) had emphasized the role of language and thought as cue-producing responses that determined emotional arousal and behavior. Current theories of aggression, notably that of Berkowitz (1970, 1972, 1974) focus on the role of cues as elicitors of aggressive behavior. Environmental stimuli are seen to elicit aggressive behavior through verbal and other cognitive associations to previous aggression. Thus, intervening thoughts are viewed as prompting aggressive behavior through the appraisal of environmental cues. The power of insult to elicit aggression has been amply demonstrated in laboratory research and is extensively described by Toch (1969) in his analysis of antagonistic interactions between police and assaultive criminals.

Magnitude of aggression has been found to relate to the perceived aggressive intent of one's opponent (Epstein and Taylor, 1967; Taylor, 1967), the justification for aggression (Berkowitz and Rawlings, 1963; Brock and Buss, 1964; Meyer, 1972), self-esteem (Green and Murray, 1973; Rosenbaum and de Charms, 1960; Rosenbaum and Stanners, 1961; Veldman and Worchel, 1961; Worchel, 1961), self-arousal (Konecni, 1975a), and awareness of anger level (Berkowitz, Lepinski, and Angulo, 1969). Reductions in aggressive behavior have also been found to result from conditions of cognitive dissonance (Firestone, 1967), from the perceived values of observers (Borden, 1975), and from cognitive restructuring (Kaufman and Feshbach, 1963; Mallick and McCandless, 1966).

Among existing theories of aggression, cognitive variables are most fully incorporated by Bandura's (1973) social learning approach. Bandura's research has examined the acquisition and performance of aggressive behavior as a function of modeling influences which operate through the processes of observational learning, disinhibition, and response facilitation. In the observational learning paradigm, the person observes an aggressive behavior pattern but does not overtly perform it until given a subsequent opportunity under appropriate circumstances. The acquisition process thus involves both attention and retention. Since aggression is viewed as largely regulated by anticipated consequences the role of cognition is prominent. Anticipated gains, beliefs about the behavior of others, and ruminations of anger arousing incidents are designated as major determinants of aggression.

Cognitive factors have a conspicuous role in conditions which maintain aggressive behavior. Philip Wylie (1968), in his book The Magic Animal, wrote that of all the members of the animal kingdom,

man was the only wiseacre. While most animals can be found to territorialize space, man territorializes ideas as well. The clash of ideologies has instigated and maintained aggressive conflict throughout history. Justification for aggression facilitates the performance of harm-doing actions, whether it takes the form of retribution received by the protagonist in the movie, Champion, or ecclesiastical appeals to divine will during the Crusades and the Inquisition. Perpetrators of aggressive acts such as those responsible at My Lai, the members of the Manson cult, or even Milgram's (1963) subjects have found ways to displace responsibility for the harm-doing behavior and exempt themselves from self-devaluation. These processes are further facilitated when the victims can be dehumanized or "deindividuated" as shown by Zimbardo's (1969) research and by a recent study by Bandura, Underwood, and Fromson (1975). Bandura et al. found that both diffusion of responsibility and dehumanization of victims increased aggression, with the latter factor being the more potent disinhibitor. In addition, the cognitive process of self-reinforcement following assaultive behavior has been shown by Toch (1969) to be implicated in the enhancement of self-esteem and the promotion of status for chronic assaulters.

The involvement of cognitive factors in aggressive behavior has been amply documented. Since aggression is often mediated by anger arousal and since the regulation of anger is the principal topic here, the role of cognition in emotional arousal will be examined.

Cognitive Factors in Emotional Arousal

Mythologies and intellectual prejudices have long induced us to view emotions as being associated with the baser qualities of humans.

Averill (1974) has argued that prior to the eighteenth century it was common to speak of emotions as "passions" by which the individual was "gripped," "seized," or "torn." Various forms of symbolism extrinsic to a scientific analysis has linked emotional arousal to irrational and non-cognitive activities. Consequently, studies of anger arousal have largely been concerned with physiological variables (Ax, 1953; Funkenstein, King, and Drolette, 1954; Schachter, 1957).

In their classic experiment, Schachter and Singer (1962) demonstrated that the cognitive aspects of a situation influence how people label their emotional arousal, particularly when the person has no immediate explanation for the arousal state. Using a comparable experimental procedure, Conn and Crowne (1964) found that approval-dependent persons were more inclined to be euphoric than angry in endorsing the simulated jubilation of an experimental confederate who had previously thwarted them.

Within Kelly's (1955) theory of personal constructs, emotions are defined in terms of cognitive systems. There is a direct link between the appraisal of the event and the emotional response. Arnold (1960) employs the concept of appraisal as the cognitive determinant of emotion, intervening between the stimulus and the emotional reaction. Lazarus (1966, 1967, 1975) has made extensive use of the appraisal concept in his examination of cognitive factors underlying threat and coping. He distinguishes two forms of appraisal, primary appraisal which pertains to whether a threat has been signaled and secondary appraisal which refers to the evaluation of adaptive action. However, Lazarus (1967) importantly construes emotional arousal as an effect rather than a cause of behavior. Traditionally, anger is viewed as the process intervening

between the stimulus event and behavior. For Lazarus, the intervening process is the cognitive activity of appraisal. Whether anger or aggressive behavior occur is a function of both external and internal controls involved in the secondary appraisal process.

The growing literature on the self-control of autonomic functioning (Katkin and Murray, 1968; Blanchard and Young, 1973) that has been stimulated by Miller's (1969) experiments on the instrumental conditioning of visceral responses provides further support for the thesis that emotion is amenable to cognitive self-regulation. Although the research on cardiovascular changes is not without its problems (cf. Blanchard and Young, 1973), cardiovascular processes, which are most pertinent to the arousal of anger, have been shown to be influenced by instruction as well as relaxation (Novaco, 1975). The autonomic conditioning and biofeedback research demonstrate that physiological change can be achieved by means of cognitive regulation.

It has been shown that cognitive factors are among the important determinants of aggressive behavior and that cognition is intimately implicated in the arousal and regulation of emotion. However, anger and aggression are viewed distinctly. Anger arousal is not an invariable precusor of aggression. In leading theories of aggression, anger is assigned response-energzing functions (Berkowitz, 1974), response-activating properties (Bandura, 1973), or a response-motivating role (Feshbach, 1971). Anger is not a necessary condition for aggression, but it is a powerful determinant of aggressive behavior as a recent review documents (Rule and Nesdale, in press). Konecni (1975a; 1975b) has proposed a relationship of bidirectional causality between the level of anger arousal and the amount of aggression expressed. In Konecni's

view, the level of anger, which entails the cognitive labeling of an arousal state as anger, is a major determinant of the amount of aggressive behavior one expresses. On the other hand, the expression of aggression is a potent means of decreasing anger level and subsequent aggressive behavior, although these latter effects may also be achieved by non-aggressive means. Konecni has supported these hypotheses by multiple results in exceptionally performed experiments. However, it seems that a bidirectional model should also specify the conditions under which aggressive behavior leads to an increase in anger level or to a further labeling of arousal as anger, as the James-Lange view of emotion would stipulate.

Cognitive Change Methods in Psychotherapy

In theories of psychotherapy, the influence of thought on emotion is most emphasized by Ellis (1973). Rational-emotive therapy is predicated on a concept of maladjustment stipulating that it is not events themselves that cause distress but rather one's interpretations and internal sentences about those events. A recent study by Goldfried and Sobocinski (1975) found that irrational beliefs indeed led to a greater susceptibility to emotional upset in situations (test anxiety and social rejection) related to irrational expectations.

Now unless one is a psychologist, it is not very impressive to hear that clinicians have discovered cognitive change as an important form of therapeutic intervention. We are notorious for rediscoveries of the wheel. But nevertheless, our clients are inevitably going to think, regardless of how we attempt to help them change. It is only logical then that we systematically assess what they think and how they think and also enable them to use their cognitions in ways to facilitate

change. Whether, as Meichenbaum (1975c) delineates, one views cognitions as behaviors similar to non-verbal behavior, as part of maladaptive response chains, as instances of faulty thinking styles, irrational belief systems, problem solving ability, or coping skills, or as defense mechanisms, cognitive processes have a signicant role in achieving therapeutic change.

Outstanding work on cognitive change methods has been performed by Goldfried (1971; Goldfried and Goldfried, 1975; Goldfried and Trier, 1974; D'Zurilla and Goldfried, 1971), Mahoney (1975; Mahoney and Thoreson, 1974), and Meichenbaum (1974, 1975a, 1975b, 1975c, 1975d). Recently, Goldfried and Goldfried (1975) presented two behavior therapy procedures emphasizing cognitive processes, these being systematic rational restructuring, derived from the work of Ellis, and problem solving, derived from the D'Zurilla and Goldfried (1971) approach. The vast array of cognitive change methods can be found in Mahoney's (1974) comprehensive and scholarly book on cognition and behavior modification. Goodwin and Mahoney (in press) used a cognitive modeling strategy with rehearsed practice of covert self-instructions and found a striking improvement in subjects' ability to cope with verbal aggression from peers. More specific to the regulation of anger, an approach developed by Meichenbaum known as stress inoculation, has been extended and elaborated by Novaco (1975, 1976, in press a; in press b) for the treatment of anger problems. The stress inoculation procedure consists of developing the client's cognitive, affective, and behavioral coping skills and then providing for the practice of these skills with exposure to regulated doses of stressors that arouse but not overwhelm the client's defenses.

Stress Inoculation Approach to Anger Management

The stress inoculation approach involves three basic steps or phases: (a) cognitive preparation, (b) skill acquisition and rehearsal, and (c) application practice. Anger is viewed as a combination of arousal and a cognitive labeling of that arousal as a function of environmental cues and one's overt and covert behavior (Lazarus, 1967; Konecni, 1975a, 1975b; Schacter and Singer, 1962). The anger management procedures intervene at the cognitive, somatic, and behavioral levels to promote adaptive coping with provocation stress.

Cognitive preparation. This phase is designed to educate clients about the functions of anger and their person anger patterns, to provide a shared language system between client and therapist, and to introduce the rationale of treatment. An instructional manual for clients facilitates these tasks. Clients are asked to keep a diary which serves as a data base for discussion of the treatment concepts. Self-control techniques (Mahoney and Thoreson, 1974; Meichenbaum, 1974) are dependent upon the person's knowledge of the internal and external factors that affect his behavior. This requires that the person become a systematic observer of thoughts, feelings, and actions within the behavior settings in which one functions.

The components of the cognitive preparation phase consist of (a) identification of persons and situations that trigger anger, (b) recognizing the difference between anger and aggression, (c) discriminating justified from less necessary anger, (d) understanding the cognitive, somatic, and behavioral determinants of anger, (e) understanding anger in terms of interaction sequences, and (f) introducing the anger management concepts as coping strategies to handle conflict and stress.

Skill acquisition and rehearsal. Cognitive, affective, and behavioral skills for coping with provocation are entailed, but only the cognitive procedures are presented here. At the cognitive level, the client is taught to alternatively view provocation events (Kelly, 1955) and to modify the exaggerated importance often attached to events (Ellis, 1973). Clients are helped to discriminate situations in which anger is justified and appropriate from the occasions when anger is unnecessary or even harmful. The development of empathic abilities, i.e. cognitive and affective role taking skills, is also encouraged. A basic goal is to promote flexibility in one's cognitive structuring of the situation. Most importantly, the appraisal of provocation as a personal affront or threat is modified. In defusing a provocation, the ability to "not take things personally" is a fundamental step. This is accomplished by fostering a task orientation to provocation which involves a focus on desired outcomes and the implementation of a behavioral strategy to produce those outcomes.

The most important cognitive intervention consists of the use of self-instructions (Meichenbaum, 1974). It has been said that man's ability to control aggression is inferior to that of animals, because in the evolutionary process, the development of inhibitory mechanisms did not keep pace with the development of destructive technology. However, the primary distinction between man and the animal kingdom is the use of language. It is proposed here that langauge, namely private speech, be used to regulate anger and aggression by the systematic application of self-instructions. The cognitive control of anger by means of private speech is accomplished by first dissecting a provocation experience into a sequence of stages: (1) preparing for a provocation, (2) impact and confrontation, (3) coping with arousal, and (4) subsequent reflection,

(a) conflict unresolved, (b) conflict resolved. Stages three and four provide for the possible failure of self-regulation and for the mitigation of additional self-arousal by ruminations. The self-regulated private speech functions as an instructional cue that guides one's thoughts, feelings, and behavior in the direction of effective coping. Examples of the self-statements are included in Table 1.

Inducing a task-oriented response set facilitates the occurrence of problem solving behavior. It is emphasized that anger is an emotional reaction to stress or conflict that is due to external events being at variance with one's liking. Poor behavioral adjustment is linked to the inability to provide problem solving responses that are effective in achieving desired goals (Platt and Spivack, 1972; Shure and Spivack, 1971). Anger management involves a strategic confrontation whereby the person learns to focus on issues and objectives. The execution of such behavior is explicitly prompted and progressively directed by the use of coping self-statements.

While only the cognitive techniques have been presented here, affective controls, namely relaxation training and the facilitation of humor and affection, and behavioral skills namely, impulse delay, communication skills, and assertion training, are also incorporated. These components have been described elsewhere (Novaco, 1975, 1976; in press b). The process of skill acquisition involves a familiarization with the three sets of coping techniques, modeling of the techniques by the therapist, and then rehearsal by the client. For the cognitive techniques, the rehearsal is conducted first overtly and then covertly. The client is then given the opportunity to test his proficiency in the third treatment phase.

Application Practice. Meichenbaum and Cameron (1972) found that the mere rehearsal of cognitive self-control skills without the opportunity for application on other stress tasks had a diminished effect in obtaining behavioral and affective change. Skills-training approaches (D'Zurilla and Goldfried, 1971; Meichenbaum, 1975; Quinn and Richardson, 1971; Richardson, 1973) emphasize the value of application practice. Since the regulation of anger is linked to the person's ability to manage a provocative situation, the client is provided with a way to test and calibrate his competence. By a regulated exposure to provocation experiences through imaginal and role play situations, the client is exposed to manageable doses of anger stimuli. Thus, his defenses are aroused but not overwhelmed. This is accomplished by construction of a hierarchy of anger scenes that the client is likely to encounter in real life. The hierarchy thereby provides the opportunity to practice the coping skills that have been introduced and rehearsed with the therapist. By progressively working on each scene, first imaginally and then in role play, the client is enabled to sharpen his skills of anger management. It should also be noted that by constructing a rigorous post-treatment test sequence (Novaco, 1975), the practice and application phase interfaces treatment with assessment.

Experimental Applications

The anger management procedures were first examined in a controlled experimental design with a self-identified client population that was thoroughly assessed as having chronic anger problems (Novaco, 1975). The stress inoculation approach was then implemented in training workshops for police officers who have a unique task with regard to anger control (Novaco, in press b). The clinical procedures were further developed

and were applied to a hospitalized depressive with severe anger (Novaco, 1976). The favorable results encouraged the continued attempt to apply the procedures to seriously disturbed populations. Training projects have been initiated at a probation department and at an acute psychiatric facility such that probation officers and psychiatric nurses are trained to conduct the treatment procedures.

Some results from the preliminary application of the treatment procedures to three females hospitalized on an acute psychiatric unit of a community hospital are presented below. Each patient had been hospitalized for depression and was referred by the attending psychiatrists for help with anger problems. They had each been hospitalized for approximately two weeks prior to the intervention for anger. The clinical judgment of an anger disorder was corroborated by anger reaction inventories used in previous research (cf. Novaco, 1975) and a new scale currently being analyzed with asks the respondent to rate his anger according to six parameters: frequency, intensity, duration, mode of expression, effect on performance, and effect on relationships. The treatment was implemented by psychiatric nurses trained in the anger management procedures. Three nurses were each assigned a patient with whom they met for three individual sessions per week for a two and one half week period. Group sessions were also conducted by the author twice weekly, during which the patients were given the opportunity to work on their provocation hierarchies in role play experiences.

The treatment was assessed by a sequence of 12 test provocations presented imaginally on a randomized schedule of one per day beginning with the start of treatment and ending prior to discharge. Given the length of

stay on an acute facility there are major difficulties in getting baseline measures, and for these cases none could be obtained without jeopardizing the length of treatment. The test situations were conducted in accordance with the experimental procedures described in Novaco (1975). The test sessions were performed by nursing staff not involved in the treatment of the patient being assessed. Each test provocation depicts an interpersonal anger situation. The person's response to that scenario which they imagine for 30 seconds is assessed by changes in systolic and diastolic pressure, the self-report of anger during the imaginal episode, and ratings of expected coping behaviors had the incident actually happened. On each test occasion, the person is first adapted to the procedure with a neutral scene before and after which blood pressure is calibrated. Observer ratings of behavior during group meetings on the ward were also collected. However, while these ratings did show improvement in constructive responses and a reduction of upset and antagonism, the ratings are not sufficiently reliable and the absence of a baseline makes their interpretation difficult.

The data for blood pressure changes and the ratings of anger and coping behaviors on 7-point scales for the 12 test trials were collapsed into 4 blocks for purposes of presentation. The verbal antagonism, physical antagonism, and constructive action indexes each consist of the combination of the respondent's ratings for two conceptually related and empirically correlated descriptions of courses of action in response to provocation (cf. Novaco, 1975). The group means for the data are presented in Table 2. There are gradual decreases in both the verbal and physical antagonism ratings, and a corresponding increase in the constructive

action ratings. It is important to note that the ratings of anger level are only slightly lowered. Although they are still angered by the provocation scene, their judged ability to manage the situation has improved. All of the patients reported a positive change in their ability to handle anger experiences on weekend passes from the hospital. Decreases in the elevation of systolic and diastolic blood pressure corroborate the results of the coping behavior ratings.

Discussion

These findings are presented only to indicate the potential value of the treatment procedures for hospitalized patients with anger problems. In the absence of appropriate control groups, it is uncertain what the reported changes indicate. An experimental variable was not manipulated and there was no systematic control of the treatment procedures or its components. However, these preliminary findings do encourage further implementation of the procedures with hospitalized patients. On an acute facility, anger disorders are commonly secondary to depression and the cognitive behavior therapy techniques can serve as a valuable adjunctive treatment.

One should not be left with the impression that these patients were brought to a satisfactory level of adjustment at the time of discharge with regard to anger management skills. The data reported here have a limited generalizability as shown by the multi-method analysis of previous research (Novaco, 1975). For two of the patients, involvement in the treatment program sensitized them to anger problems that were previously unrecognized. While preoccupied with feelings of discouragement and worthlessness, one can overlook the pervasive and severe anger that is

there to be seen, not by psychodynamic interpretation, but simply by inspection. For one patient this amounted to looking at the casts on both of her arms. Thus, at discharge, two patients still judged themselves to have problems with anger management, while the third had shown considerable improvement both in the hospital and at home.

Prior to discharge, the patients' husbands were enlisted for a couples group on anger which has facilitated continued therapeutic change. The group has met with great enthusiasm. Although techniques for resolving anger problems between couples have been described by others (Bach and Wyden, 1968), there has been no systematic research in this area. It is suggested that the stress inoculation approach can serve as a means by which such research might be conducted.

Table 1

Examples of Anger Management Self-Statements Rehearsed in Stress Inoculation Training

Preparing for a Provocation
This could be a rough situation, but I know how to deal with it.
I can work out a plan to handle this. Easy does it.
Remember, stick to the issues and don't take it personally.
There won't be any need for an argument. I know what to do.
Impact and Confrontation
As long as I keep my cool, I'm in control of the situation.
You don't need to prove yourself. Don't make more out of this than you have to.
There is no point in getting mad. Think of what you have to do.
Look for the positives and don't jump to conclusions.
Coping with Arousal
Muscles are getting tight. Relax and slow things down.
Time to take a deep breath. Let's take the issue point by point.
My anger is a signal of what I need to do. Time for problem solving.
He probably wants me to get angry, but I'm going to deal with it constructively.

Table 1 (cont.)

Subsequent Reflection

a. Conflict unresolved

Forget about the aggravation. Thinking about it only makes you upset.

Try to shake it off. Don't let it interfere with your job.

Remember relaxation. It's a lot better than anger.

Don't take it personally. It's probably not so serious.

b. Conflict resolved

I handled that one pretty well. That's doing a good job!

I could have gotten more upset than it was worth.

My pride can get me into trouble, but I'm doing better at this all the time.

I actually got through that without getting angry.

Table 2

Group Means on Dependent Measures for Imaginal Provocations in Four Blocks of Test Trials

Measure	Blocks 1	2	3	4
Ratings of Anger Level	6.22	5.44	5.33	5.89
Verbal Antagonism	4.39	3.28	3.00	3.06
Physical Antagonism	4.28	3.95	3.78	3.55
Constructive Action	3.11	3.94	4.22	4.61
Systolic Pressure Change (mm)	4.00	1.34	2.44	1.33
Diastolic Pressure Change (mm)	1.78	-.22	.44	1.33

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